



## Disaster and Emergency Management Resources

### Introduction to Floods and Flash Floods

#### **Floods**

Floods are the most common and widespread of all natural disasters--except fire. Most communities in the United States can experience some kind of flooding after spring rains, heavy thunderstorms, or winter snow thaws. Several factors contribute to flooding. Two key elements are rainfall intensity and duration. Intensity is the rate of rainfall, and duration is how long the rain lasts. Topography, soil conditions, and ground cover also play important roles. Floods can be slow- or fast-rising but generally develop over a period of days. Flooding occurs in known floodplains when prolonged rainfall takes place over several days, intense rainfall takes place over a short time, or when an ice or debris jam causes a river or stream to overflow and flood the surrounding area. Melting snow can combine with rain in the winter and early spring; or severe thunderstorms can bring heavy rain in the spring and summer.

#### **Flash Floods**

Flash floods usually result from intense storms dropping large amounts of rain within a brief period depending on local terrain, ground cover, degree of urbanization, degree of man-made changes to river banks, and initial ground or river conditions. Flash floods occur with little or no warning and can reach full peak in only a few minutes. Flash floods occur within six hours of a rain event, or after a dam or levee failure, or following a sudden release of water held by an ice or debris jam.

#### **Flood Facts**

- Floods are among the most frequent and costly natural disasters. Floods cause as much as 90 percent of the damage related to all natural disasters (excluding droughts).
- The force of 6 inches of swiftly moving water can knock people off their feet. Flash flood waters move at very fast speeds and can roll boulders, tear out trees, destroy buildings, and obliterate bridges. Walls of water can reach heights of 10 to 20 feet.

- Cars can be easily swept away in just 2 feet of moving water. If floodwaters rise around a car, it should be abandoned and passengers should climb to higher ground.
- As land is converted from fields or woodlands to roads and parking lots, it loses its ability to absorb rainfall. Urbanization increases runoff two to six times over what would occur on natural terrain. During periods of urban flooding, streets can become swift-moving rivers, while basements and viaducts can become death traps as they fill with water.

### **Flood Watches and Warnings**

- **Flood Watch** is the first sign a flood may occur, and when a watch is issued, you should be aware of potential flood hazards.
- **Flood Warnings** indicates that a flood event is occurring or is imminent in about 30 minutes to an hour. Local National Weather Service forecast offices issue warnings on a county-by-county basis.
- **Flash Flood Watch** signifies a dangerous situation where rapid flooding of small rivers, streams, creeks, or urban areas are imminent or already occurring.
- **Flash Flood Warning** indicates that flash flooding is possible in and close to the watch area. Those in the affected area are urged to be ready to take quick action if a flash flood warning is issued or flooding is observed.
- **Urban and Small Stream Flood Advisory** alerts the public to flooding due to heavy rain that will cause flooding of streets and low-lying places in urban areas and along small streams.
- **Flash Flood Statement** is used as a follow-up to Flash Flood Warnings and Watches. The statement will contain the latest information on the event.

*Adapted from resource material developed by the Federal Emergency Management Agency and the National Weather Service*